1.3B Subsets and Density

Members/Elements of a Set

The numbers (or letters, words, etc.) that are part of a set

Subset of a Set

A new set up made up of only elements of the original set (called the Parent Set)

Ex. 1 Determine the number of elements in each set.

a) {3,5,7,9} 4

b) {soccer, basketball, volleyball, football} 4

c) {1,3,5,7,9,...} Infinite

d) {-5,-3,-1,2,4,6,8,10} 8

Ex. 2 Circle the sets that are subsets of the given parent set.

a) **Parent:** {1,2,3,4,5,6,7,8,9,10}

{1,4,6} {0,1,2,3,4,5} {1,2,3,4,5,6,7,8,9,10} entire set

{ } "null set" {2,4,6,8,10,12} {-2,2} {7}

b) **Parent:** {-10, -7, 4, 8, 9}

{10} X {4,7} X {-10,-7,4,8,9} {-10,-7,4,8,9, 10} X

Ex. 3 List the members of each set using set notation { }.

a) the set of even whole numbers {0,2,4,6,...}

b) the set of integers that are divisible by 10

{...,-20,-10,0,10,20,...}

c) the set of negative natural numbers

N => 1,2,3,... No Negatives!

{}

Density Property

- a set is "dense" if between every 2 members in the set, there is another number between then that is also part of the set
- this means there are an infinite number of numbers between any 2 members in a dense set!

$1 \longleftrightarrow 1.25$

$1.24 \longleftrightarrow 1.25$

VIDEO

"Can you insert a number that isn't covered by the set?"

YES → NOT DENSE

Ex. 4 Circle the following sets have the density property.

a) N X

b) Z X

c) Q

d) {1,3,5,7,9...} X

e) {0.4, 0.44, 0.444, 0.4444, ...} 0.4443 ↓ X

f) the set of all numbers between 2 and 3